

~~DUV
End~~
 a lens group that comprises a plurality of lens elements made of quartz glass and fluorite, wherein the objective has a DUV focus at a DUV wavelength, λ_{DUV} greater than or equal to 235 nm, wherein the DUV focus encompasses a DUV wavelength region $\lambda_{\text{DUV}} \pm \Delta\lambda$, where $\Delta\lambda = 8$ nm, wherein the objective has an IR focus for an IR wavelength λ_{IR} greater than or equal to 760 nm at the same focal point as the DUV focus at λ_{DUV} , and wherein a penultimate lens element of the lens group comprises a concave configuration on both sides, wherein an object-side outer radius of the penultimate element is smaller than its image-side outer radius.

~~D2~~
 19. (Twice Amended) A DUV-capable microscope, comprising:
 an objective comprising a plurality of lens elements, wherein the objective has a DUV focus at a DUV wavelength, λ_{DUV} greater than or equal to 235 nm, wherein the DUV focus encompasses a DUV wavelength region $\lambda_{\text{DUV}} \pm \Delta\lambda$, where $\Delta\lambda = 8$ nm, wherein the objective has an IR focus for an IR wavelength λ_{IR} greater than or equal to 760 nm at the same focal point as the DUV focus at λ_{DUV} , and wherein a penultimate lens element comprises a concave configuration on both sides, wherein an object-side outer radius of the penultimate element is smaller than its image-side outer radius; and
 an IR laser autofocus system in optical communication with the objective to provide the IR wavelength λ_{IR} and auto-focussing.

~~P3~~
 22. (Twice Amended) A microscope objective, comprising:
 a converging first lens disposed closest to an object being imaged;
 a converging second lens disposed along an optical axis after the first lens;
 a first doublet lens disposed along the optical axis after the second lens;
 a first triplet lens disposed along the optical axis after the first doublet lens;
 a second triplet lens disposed along the optical axis after the first triplet lens;
 a converging lens group comprising one or more lenses disposed along the optical axis after the second triplet lens;

D3
End
a diverging penultimate lens comprising concave outer sides, wherein an object-side outer radius is smaller than an image-side outer radius disposed along the optical axis after the converging lens group; and

a diverging doublet lens disposed after the penultimate lens,
wherein the objective has a focal length of 1.6 mm or less at a DUV wavelength, λ_{DUV} greater than or equal to 235 nm, and an IR wavelength, λ_{IR} greater than or equal to 760 nm, and wherein a numerical aperture of the objective is at least 0.8.

23. (Twice Amended) The objective as defined in claim 22, wherein the objective has a DUV focus at a DUV wavelength, λ_{DUV} greater than or equal to 235 nm, wherein the DUV focus encompasses a DUV wavelength region $\lambda_{\text{DUV}} \pm \Delta\lambda$, where $\Delta\lambda = 8$ nm, wherein the objective has an IR focus for an IR wavelength λ_{IR} greater than or equal to 760 nm at the same focal point as the DUV focus at λ_{DUV} .

Please add the following new claim 24: ✓

D4
24. (New) A DUV-capable microscope, comprising:
an objective comprising a plurality of lens elements, wherein the objective has a DUV focus at a DUV wavelength, wherein the objective has an IR focus for an IR wavelength at the same focal point as the DUV focus, and wherein a penultimate lens element of the plurality of lens elements comprises a concave configuration on both sides, wherein an object-side outer radius of the penultimate element is smaller than its image-side outer radius.
